# DE LA SALLE UNIVERSITY

FACTORS RELATED TO THE MATHEMATICAL PROBLEM SOLVING ABILITY OF THE FRESHMEN AND SOPHOMORES OF DE LA SALLE - SANTIAGO ZOBEL SCHOOL, 1991 - 1992

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ABSTRACT

This study investigated the different factors affecting the problem solving ability of the first and second year high school students of De La Salle-Santiago Zobel School during the schoolyear 1991-1992.

Specifically, it investigated the following:

1. the profile of the student respondents;

2. the significant difference between the male and female respondents in terms of the different independent variables;

3. the significant relationship between problem solving ability and the different independent variables; and

4. the predictors of problem solving ability.

The subjects of the study were 219 students chosen through proportional stratified random sampling from a group of 519 first and second year high school students of De La Salle-Santiago Zobel School in New Alabang Village, Muntinlupa, Metro Manila during the schoolyear 1991-1992.

The Guidance Center of the school administered the Metropolitan Achievement Test to the population. The

data of the samples of the study on reading comprehension, understanding of mathematics concepts, and intelligence quotient were used in this study. The population was also given three separate tests on computational skill, translating problems to equations, and problem solving by the researcher. They were also asked to answer the questionnaires on attitude toward mathematics, students' perception of the teacher, and socio-economic survey to which was incorporated five questions on the degree of outside assistance they receive. Only the data of the chosen respondents of the study were taken into consideration. The respondents' mathematics achievement was determined by getting the average of the first three quarter grades of the schoolyear 1991-1992.

To describe the profile of the student respondents, the obtained means and standard deviations were computed and interpreted. To determine the significant difference between the male and female respondents in terms of the different independent variables, the t-value was computed and compared to the tabular t. The Pearson Product Moment of Correlation was computed to determine the relationship between problem solving ability and the independent variables

of the study. The multiple R was computed to find out the possible predictors of problem solving ability.

For the first year students, the findings of the study were the following:

1. There is a significant difference between the male and female respondents in terms of attitude toward mathematics;

2. Significant relationship exists between problem solving ability and computational skill, the ability to translate problems to equations, intelligence, mathematics achievement, reading comprehension, understanding of mathematics concepts, and attitude toward mathematics;

3. The predictors of problem solving ability are understanding of mathematics concepts, the ability to translate problems to equations, attitude toward mathematics, and intelligence.

For the second year students, the findings of the study were the following:

1. No significant difference was found between the male and female respondents in terms of all the

independent variables;

2. Significant relationship was found between problem solving ability and computational skill, the ability to translate problems to equations, intelligence, mathematics achievement, reading comprehension, understanding of mathematics concepts, attitude toward mathematics, and the degree of assistance received outside of the classroom.

3. The predictors of problem solving ability are mathematics achievement, the ability to translate problems to equations, understanding of mathematics concepts, and the degree of outside assistance received outside of the classroom.

On the basis of the findings, the following conclusions are drawn:

1. A typical De La Salle-Santiago Zobel School student has above average intelligence; high average reading comprehension, understanding of mathematics concepts, and mathematics achievement; satisfactory perception of his mathematics teacher; moderately satisfactory attitude toward mathematics; receives moderate degree of assistance outside of the classroom;

and belongs to the low upper class level of society. His performance in computational skill is very good while his ability to translate problems to equations is considered poor. His problem solving ability is fair.

2. No significant difference was found between the male and the female respondents in terms of the independent variables in the second year level, however, in attitude toward mathematics, significant difference was found between gender in the first year with the male respondents having a better attitude.

3. For both the first and second year students, the ability to translate problems to equations, mathematics achievement, and understanding of mathematics concepts showed a marked relationship with problem solving ability. On the basis of the findings and conclusions, it is recommended that:

1. the ability to translate problems to equations should be mastered first before attempting to proceed to problem solving tasks;

2. too many 'short cuts' should be avoided so that students will fully understand the concepts and principles in the solution of problems;

3. teachers should be highly motivated and creative, particularly in the first year level;

4. remediation measures should be given to students who, at the start, are not performing satisfactorily; and

5. related studies be conducted to determine the other factors which might also affect the problem solving ability of students and to further validate the findings of this study.